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| EXAMINER | |
|---|---|
| AUSTIN, AARON | |

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| 1794 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/522,068 | WADLEY, HAYDN N.G. | |
| | Examiner | Art Unit | |
| | AARON S. AUSTIN | 1794 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *16 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-6,10,11,14-21 and 23-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,10,11,14-21 and 23-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/16/09 has been entered.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 14, 19, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 14, 19, and 24, the phrase "such as" renders the claims indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102 and 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6, 10-11, 14-21, and 23-35 are rejected under 35 U.S.C. 102(a and e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Colvin (US 6,418,832).

Colvin teaches a structure comprising a first array of cellular housings and a plurality of geometric cellular core structures 41 and/or 90 in the cellular housings (column 5, lines 11-35; Figs. 2, 5A & 5B, 9). The structure is used as armor which enhances “impact energy absorption” as part of a projectile inhibiting layer (column 2, lines 1-21). Thus the structure will absorb some level of energy from an explosion or collision.

Regarding the bonding of the cellular housings, the cellular housings 22/40/76 are "bonded together" directly to form an array of housing structures (Figs. 5A & 5B). The "bonding" occurs both through bonding of the molecules forming the housings, even if integral in structure, as well as though "the bond formed at the edges 23 and 24" which binds the housings together with or without adhesive (column 3, lines 57-65). In an alternative embodiment, the cellular housings are "bonded together" via connectors 81 (Figs. 2 and 3) to form an array of housing structures. Even if integral with the housings themselves, the connectors 81 are considered to "bond" the cellular housings 76 due to the bonding of the molecules constituting the structure.

*In the alternative*, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the cellular housings 22/40/76 separately, with or without connectors 81, and bond them together to form the array, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. In the present case, Colvin teaches treating and sealing the cells of the array separately (column 3, lines 57-62). It would be routine for one of ordinary skill in the art to use this teaching as guidance for forming the cells separately and binding them to form the taught array.

Regarding claim 2, a second array of a plurality of cellular housings and at least one cellular core in the cellular housings is taught (Figs. 2, 5A, 5B, and 8).

Regarding claims 3-4, first and second panels are disposed on the arrays 74/20 and 77/21 in positions distal from each other (Figs. 2, 3, and 4).

Regarding claims 5, 10, 15, and 20, the cellular housing may have a hexagonal, rectangular, conical, or other polygonal shape (column 4, lines 13-39).

Regarding claims 6, 11, 16, and 21, the cellular core may include solid spherical portions (column 5, lines 18-35; Fig. 9).

Regarding claims 14, 18-19, and 23-24, the cellular cores may include solid spherical portions which may be considered "solid powder particles" as well as "granular powders" in both their micro and macro sizes (column 5, lines 18-35; Fig. 9). Direct insertion into selected cells creates a random aggregate of these particles in the cells.

Regarding claims 25, 29, and 33, the panels may be bonded by adhesive to the arrays (column 3, line 65).

Regarding claims 26, 27, 28, 30, 31, and 32, the claims represent intended use in that they are directed to general structural uses for the "structure" found in the preamble of claim 1 only. Colvin teaches armor which may be used as "armor generally" as well as by being "placed over the surface to be protected" in addition to use as body armor (column 2, line2; column 5, lines 61-62). Thus the armor of Colvin is suitable for use as armor for the claimed general structures. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See MPEP 2111.02(II). Furthermore, it has been held that a recitation with respect to the manner in which a claim apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed

structural limitations. *Ex Parte Masham*, 2 USPQ2d 1647 (1987). In the present case, as the claimed limitations are met as set forth above, the recitation of general structural use in these claims does not differentiate the use of the armor of Colvin from the structure claimed.

Regarding claims 34 and 35, the cellular housings and cores may comprise plastics or other pliable materials (column 4, lines 3-5, column 5, lines 11-60).

Claims 6, 11, 16-19, 21, and 23-24, are rejected under 35 U.S.C. 103(a) as obvious over Colvin (US 6,418,832) in view of Gerber et al. (US 4,665,794).

Colvin teaches an armor structure as described above. Furthermore, the cellular core structures 41/90 may be incorporated into foam 45 (column 5, lines 18-21).

Colvin does not teach hollow/porous geometric cellular core structures wherein "geometric" refers to a cellular core structure having a surface structure comprised of simple lines and shapes as is commonly understood by the term and represented in Applicant's Figs. 1A-1D and 4A-4F (See page 9 of the Remarks in the Reply of 3/9/09).

Gerber et al. teach an armor plate wherein hollow filler elements 3, preferably in the form of hollow spheres or tubes or other shapes, serve as cellular core structures within spaces 2 in the armor plate (column 1, lines 51-57). The filler elements are incorporated into foam 8 in space 2, thereby filling the space 2 and advantageously creating a space having material density and orientation changing rapidly in cross-section which increases protective capacity of the armor (column 1, lines 19-28). Therefore, as Gerber et al. clearly teach inclusion of hollow filler elements in a foam

filled space in armor provides the advantage of increased protective capacity due to rapid changes in cross section, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to incorporate hollow/porous geometric shapes in the foam filled spaces/housing structures of Colvin.

Claims 26, 27, 28, 30, 31, and 32, are rejected under 35 U.S.C. 103(a) as obvious over Colvin (US 6,418,832) in view of Kitchen (US 6,286,785).

Colvin teaches an armor structure as described above. Furthermore, Colvin teaches armor which may be used as "armor generally" as well as by being "placed over the surface to be protected" in addition to use as body armor (column 2, line2; column 5, lines 61-62).

Colvin does not specifically teach the claimed general structural uses for the taught armor. The determination of whether preamble recitations are structural limitations or mere statements of purpose or use "can be resolved only on review of the entirety of the [record] to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Corning Glass Works*, 868 F.2d at 1257, 9 USPQ2d at 1966. If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999). See also *Rowe v. Dror*, 112

F.3d 473, 478, 42 USPQ2d 1550, 1553 (Fed. Cir. 1997). In the present case, reasonable minds could differ in determining whether the claim language is directed toward general uses that modify the "structure" in the preamble of claim 1. See MPEP 2111.02(II).

Therefore, *in the alternative to the argument set forth above*, Kitchen teaches high speed impact/collision resistance is desirable for vehicular structures, such as boat hulls, as well as body armor (column 2, lines 58 and 61). Furthermore, Kitchen teaches materials used as body armor may also be usable vehicular protection in increasing high speed impact resistance (column 4, lines 44-65). Therefore, as Kitchen clearly teaches similar levels of high speed impact resistance are necessary for vehicular structures, such as boat hulls, and body armor, it would have been obvious to one of ordinary skill in the art at the time of the claimed invention to use the body armor usable as a general armor of Colvin (column 2, line 2) in protection of a boat hull.

### ***Response to Arguments***

Applicant's arguments, see the Remarks, filed 3/9/09, with respect to the objection to the specification and the rejections under 35 USC 112, second paragraph of claims 28 and 32 have been fully considered and are persuasive. The objection and rejections have been withdrawn.

Applicant's remaining arguments filed 3/9/09 have been fully considered but they are not persuasive.

With respect to the Colvin reference, Applicant first argues the Colvin armor is not designed to protect against an energy impulse caused by an explosion or collision as set forth in claim 1. However, the structure is used as armor which enhances "impact energy absorption" as part of a projectile inhibiting layer (column 2, lines 1-21). Thus the structure will absorb some level of energy from an explosion or collision. Therefore Applicant's argument is not persuasive.

Second, Applicant argues there are no identifiable cellular housing structures bonded together to form an array of housing structures as claimed, pointing to Figs. 5A-5B for reference. However, the cellular housings 22/40/76 are "bonded together" directly to form an array of housing structures (Figs. 5A & 5B). The "bonding" occurs both through bonding of the molecules forming the housings, even if integral in structure, as well as though "the bond formed at the edges 23 and 24" which binds the housings together with or without adhesive (column 3, lines 57-65). In an alternative embodiment, the cellular housings are "bonded together" via connectors 81 (Figs. 2 and 3) to form an array of housing structures. Even if integral with the housings themselves, the connectors 81 are considered to "bond" the cellular housings 76 due to the bonding of the molecules constituting the structure.

*In the alternative*, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the cellular housings 22/40/76 separately, with or without connectors 81, and bond them together to form the array, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. In the

present case, Colvin teaches treating and sealing the cells of the array separately (column 3, lines 57-62). It would be routine for one of ordinary skill in the art to use this teaching as guidance for forming the cells separately and binding them to form the taught array.

Third, Applicant argues the foam 45 is a material rather than a geometric structure. As such, the argument states that the foam 45 does not qualify as a possible cellular core material as claimed. In response, it is recognized that “geometric” as used by Applicant in this argument refers to a cellular core structure having a surface structure comprised of simple lines and shapes as is commonly understood by the term and represented in Applicant’s Figs. 1A-1D and 4A-4F. However, a plurality of geometric cellular core structures 41 and/or 90 are taught as being used in the cellular housings of Colvin (column 5, lines 11-35; Figs. 2, 5A & 5B, 9). Therefore Applicant’s argument is not persuasive.

Fourth, Applicant repeats the second argument listed above that there are no identifiable cellular housing structures bonded together to form an array of housing structures as claimed. Further, the argument states that connectors 81 serve as fluid channels and thus do not "bond together" cells 76 as asserted in the rejection. In response, the connectors 81 can serve more than one purpose. In particular, while Colvin does disclose an embodiment wherein connectors 81 include fluid channels, the connectors still serve to “bond” the cellular housings 76 due to the bonding of the molecules constituting the structure. Therefore Applicant’s argument is not persuasive.

## *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON S. AUSTIN whose telephone number is (571)272-8935. The examiner can normally be reached on Monday-Friday: 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aaron S Austin/
Examiner, Art Unit 1794